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Present Challenges in Public Health[1]

K. C. CHARRON,[2] M.D.

IN preparing this paper I consulted with the heads of sections and divisions in the Department of National Health and Welfare with responsibility for health services of particular interest to most public health workers. One feature which emerged and assumed prominence was that in practically every case the scope and emphasis of the program was undergoing substantial change. These changes were stimulated by a number of factors such as advances in medical science, alteration of social patterns, and new ideas on organization, administration, and finance. This ferment has not been limited to the special health fields as similar trends are evident in the organism as a whole. Growth and development have been, of course, prominent features throughout the history of public health but we appear to have reached an important crossroad. On the one hand there is challenge and opportunity—on the other there are features which, if not carefully handled, could lead to barriers on the road to further progress.

"Present Challenges in Public Health" allows considerable choice in the selection of areas which can be used as examples. One might choose the hospital insurance and diagnostic services program as it is one of the most significant developments in the health field in Canadian history. It is much more than a fiscal program as emphasis is being placed on effective utilization of services, quality of care and availability of resources. The program is having a substantial impact on health arrangements in Canada and presents a major challenge to public health workers. Similarly, maternal and child health can be discussed since changing concepts are apparent in pre-natal and post-natal care, health arrangements for pre-school and school children, and the interrelationship between clinical and public health services. Environmental health

[1]Opening address to the School of Hygiene, University of Toronto, Sept. 11, 1959.
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is another broad area with many challenges for public health engineers and the varied professions associated with occupational health. Water and air pollution present many complex problems to the personnel in these two fields. One can describe practically every special health field, but a choice has to be made. The five areas that I have chosen as present challenges in public health are Administration and Organization; Mental Health; Medical Rehabilitation and Chronic Disease Control; Health Radiation and Emergency Health Services.

Administration and Organization

In a complex field such as health, and particularly in a country with a federal-provincial-municipal structure, there are bound to be many challenging administrative problems. When one adds to this the changing philosophies which must be integrated into the over-all pattern and the varied circumstances which exist in different parts of the country, it is apparent that the administration, organization, scope and appraisal of health services are important matters which will challenge and continue to challenge most public health workers.

At local or municipal level, you will be faced with many intriguing situations: for example, what techniques to use for an appraisal of the needs of your community and for an assessment of the effectiveness of the health unit; what is the best type of organization, both for the service as a whole and its individual components; how best to establish a close liaison with clinical services and with hospitals; the role that you should play in the development and co-ordination of voluntary health associations; and the relationship between health and welfare, with arrangements to ensure continuity between these two programs. These are only a few of the important matters which will challenge you in the broad field of local administration.

One delicate situation which occurred recently, might be cited as an example. The question was raised as to whether public health resources should be used to vaccinate adults against poliomyelitis or whether this should be left to private practitioners. The decision was to provide the vaccine free-of-charge and to leave the vaccination of adults to practising physicians. Results, however, were disappointing in that young adults did not avail themselves of this service in substantial numbers, therefore, the initial decision was reversed in a number of communities and public health units began to vaccinate adults. Does this signify a trend for the future? Will public health assume responsibility for adult immunization? This is the type of interesting administrative decision which frequently faces the local medical officer of health and his advisers. Decisions have to be made after a careful analysis of the situation, but once a course of action is indicated, then the local medical officer and his staff must be prepared to take appropriate action. Such a situation requires tact, diplomacy, and firmness.

Provincial health workers will be called upon to deal with similar problems and will also have to cope with matters which are peculiar to this level of jurisdiction. One of these is the tendency in Canada, and in some other countries, to set up separate administrative authorities to handle special health problems. I refer to the boards and commissions which have been established

to deal with hospital insurance and water and air pollution. This administrative technique is not limited to the health field and appears to gain favour when programs impinge on delicate matters of jurisdiction, ownership, or finance. I am not criticising the arrangement as there are advantages as well as disadvantages and the pros and cons are carefully weighed before the system is adopted. It does, however, create problems of co-ordination and integration which have to be approached with a real spirit of co-operation. Those who are not familiar with the complex pattern of health services usually consider that the lines separating the various health fields are clearly defined, and therefore that there are no disadvantages inherent in setting up a separate administrative authority. This is not the case as is amply demonstrated in the field of hospital care insurance. For example, does one consider the admission chest X-ray a public health program or a hospital service; is routine serology on in-patients a case-finding device or is it related to the patient's illness; how do public health laboratories fit into the clinical laboratory pattern; and how are medical rehabilitation services in hospital dovetailed with those provided outside? These are only a few of the difficult administrative problems that had to be solved when separate authorities were set up to deal with hospital services. When they were worked out to the satisfaction of both authorities, a good workable administrative pattern developed.

At this time I would warn against the acceptance of the principle that if a procedure is likely to be administratively difficult and fraught with headaches it should be avoided. This may be the easy way out, but it does not lead to progressive program development. Furthermore, your sins of omission have a habit of catching up with you and your career will be adversely affected. Good administrators prefer to establish the objective and then work out the best possible administrative arrangement.

The Department of National Health and Welfare has responsibilities which are within federal jurisdiction such as the Food and Drugs Administration, Indian and Northern Health Services, Quarantine Immigration Medical and Sick Mariners' Service, health recommendations under the Atomic Energy Control Act, etc. Many of the Department's services are advisory, and a primary function of my directorate is assistance to the provinces and, through the provinces, to local health services. I can assure you that we are not lacking in administrative challenges and in order to meet these we have adopted a procedure of regular program appraisal. The Department, the provinces, through the Dominion Council of Health, the Canadian Public Health Association and this School, are all actively engaged in working out techniques for program appraisal and investigation. This is a co-ordinated effort and I enumerate the agencies interested in the subject as an indication of the degree of importance that is associated with this matter. It will not, I am sure, lead to a one-shot approach but rather to a series of studies which will provide up-to-date information in the many fields of public health endeavour.

As we progress from national to international spheres, the number, nature, extent and complexity of challenges in public health increase to an almost incredible degree. It is therefore fitting that we recall here one of the principles included in the preamble to the constitution of the World Health Organization.

It reads "Unequal development in different countries in the promotion of health and control of disease, especially communicable disease, is a common danger". This we must keep constantly in mind in contemplating present challenges in public health in the international field and be prepared, regardless of the immensity of the task, to extend every effort to overcome these inequalities.

The defined objective of the World Health Organization is the attainment by all peoples of the highest possible level of health and in its achievement a wide variety of programs which we fully support are being vigorously developed. Supplementing the efforts of WHO, assistance is also provided by other international agencies such as the U.N. Technical Assistance Program, UNESCO and UNICEF. Primarily, this involves training health workers of all types but also includes technical aid by way of essential health supplies and equipment, and advice by experts in the development of specific disease control programs. As the specialized health agency for the United Nations, it is of interest to note that WHO alone employed some 950 professionally qualified persons in 1958. We take some small measure of pride in learning that 49 of these are Canadians, many of them public health nurses.

Of more direct interest in this world-wide effort to equalize development in the promotion of health is the special contribution by Canada through its participation in the Colombo Plan. Here, the pattern is similar to that among the other special programs, involving training, material assistance and the provision of experts, with the greatest emphasis on advanced training of health personnel in a wide variety of specialized areas. At last count, 32 scholars under Colombo and the West Indies and Ghana Plans were receiving training at Canadian institutions. It is apparent, therefore, that the field of international health offers many challenges.

Mental Health

The wide field of mental illness constitutes the largest single special medical and hospital problem in Canada. Published figures concerning the prevalence and incidence of these diseases are incomplete, and often misleading, but economic costs alone give an indication of the size of this problem—in 1958 the total operating cost of mental hospitals reporting finances was in excess of $85,000,000. As of December 31 of that year, more than 71,000 patients were on hospital books as receiving care. Nevertheless, such data do not take into account those who are functioning badly or inadequately and those who are unstable and yet occupy a strategic place either in the home or the community, and who by virtue of their position may alter significantly the psychological atmosphere around them.

A glimpse of the real extent—and the challenge—may have been given us by the recent work of Leighton who has just completed in Canada one of the largest epidemiological studies in the field of mental illness and by Shepheard working at the Maudsley Hospital, England, in the research department of social psychiatry. The former has shown that in many communities, and using the most generous interpretations, less than 20% of the population were without signs of mental illness, whereas the latter demonstrated that over 50% of those

presenting themselves to the family physician with a somatic condition, were in fact suffering from masked depression.

Reflection on these matters is depressing, and yet during the last 20 years, psychiatry, together with the allied sciences of psychology and social work, has made tremendous strides forward. The whole atmosphere of our mental institutions has changed from one of depression to a spirit of optimism which includes even the most refractory cases. This change in attitude is justified by the fact that more patients than ever before are being discharged from hospital to resume their proper place in society. In the last ten years, the average length of hospital stay (for all diagnoses except mental deficiency) has fallen to under six months.

There is now a growing acceptance of the fact that hospitalization is only an incident in the life history of a mental illness that began long before the patient was hospitalized and which is by no means finished when the patient is ready for discharge. In this new concept, there is a re-orientation of the mental health services towards community care, and away from hospital care—except where the special services of the hospital facilities are needed. All this implies a considerable expansion of services provided by local health authorities for the benefit of the mentally disordered.

It is important to ensure that the patient receives that treatment which is most suited to his needs and at least four stages in the application of this principle can be distinguished, i.e., diagnostic, prompt provision of the necessary care, maintenance of a link between patients in hospital and the outside world, and follow-up services after discharge from in-patient care. In the past, provision of those services outlined above has often been difficult because no one authority or person has been in a position to execute the necessary co-ordination. One now feels that the local medical officer of health with his special training and unique knowledge of local organizations is the one person to effect over-all co-ordination and to provide additional services.

Within this framework there is a special role for the public health nurse in the field of prevention, public education, and rehabilitation. At the moment many of these nurses are somewhat hesitant to accept added responsibility in the field of mental health. This reluctance can be met by the provision of special courses designed to teach the more important aspects of mental health to the public health nurse.

One would also like to see psychiatric social workers appointed to the staff of the local medical officer of health. The addition of people trained in this discipline would be invaluable and it would be to them that the public health nurse could turn for expert advice in those cases demanding the specialized and unique skills of the psychiatric social worker.

A few other areas in which good preventive and rehabilitative work could be done are better preventive services for the prospective mother, the infant and the child; improved biostatistics; prevention and early detection of contagious diseases which have neurological sequelae; and the sponsoring of mental health clinics, with good follow-up services.

Increased altertness by all those engaged in public health will pay rich dividends in better mental health.

Medical Rehabilitation and Chronic Disease Control

There is no doubt that chronic disease is responsible for some of the greatest and most complex problems facing health workers in Canada today. A study of morbidity and mortality statistics indicates that while many acute conditions have bowed to medical progress, chronic disease has not been as amenable to prevention and treatment. The prevention and successful treatment of chronic disease are two of the great health challenges of the future.

This does not mean that progress has not been made nor does it mean that this progress has not been substantial. Many disease conditions which formerly led to permanent disability have been largely controlled, and modern methods of therapy and rehabilitation can, and do, work miracles in minimizing the effects of chronic illness. It must be admitted that in the past chronic diseases have not received the attention they deserve and a careful re-appraisal, particularly by public health personnel, is necessary.

Good rehabilitation includes not only medical but also psycho-social and vocational programs. These additional elements must be closely related to the medical phase and in large part based upon it. For that reason, the so-called "team work approach" has come to be one of the primary characteristics of the rehabilitation program. Public health services have a vitally important place on such a rehabilitation team. In many circumstances, however, public health personnel have not accepted this challenge. This, in my opinion, is unfortunate, as the ramification of such a program reaches the very heart of public health services. If we do not accept the challenge in this relatively new public health field, then some other arrangement will be made to the detriment of the future of public health in Canada.

Although there has been a tremendous development of rehabilitation facilities and services during the past decade, with support being given at all levels of government and by many voluntary organizations, we have still only begun to scratch the surface of the disability problem. It is extremely difficult to estimate the prevalence of disability in Canada, owing to the lack of accurate data, although we know that permanent and chronically disabled persons constitute a significant segment of Canada's population. To appreciate the situation fully, we need a more accurate count and classification of disabled persons and we need to know the exact number of newly disabled persons each year. Public health services can give invaluable leadership in setting up comprehensive registries or other statistical systems in this field.

The importance of the health and welfare problems of chronic illness is highlighted by the fact that at least three provinces in Canada have held institutes to study the subject, the most recent being a Conference held in Saskatchewan in June, 1959, on the Aged and Long Term Illness. The Health Branch of the Department of National Health and Welfare is also active in this regard and has a committee on chronic diseases and the health problems of the aged. Five working groups deal with specific areas, namely chronic diseases of particular significance to public health; hospitals and nursing homes for long term patient care; home care arrangements; housing, nutrition, and activities; and other health resources.

The challenge which this field presents to public health is consistent with

our traditional role in the field of preventive medicine. The degree of success achieved in the control of chronic illness will have an important effect on the economy of the country and the well-being of a substantial number of its citizens.

Radiation Protection

At the beginning of this century radiation seemed to be established as an occupational health problem limited to a relatively small group of physicians and dentists using X-rays or radium, and another small group composed of radium-dial painters, and uranium miners. With the advent of nuclear explosions and controlled nuclear fission to produce radioisotopes, however, radiation has emerged as a major environmental health problem.

It is interesting to note that it was through radioactive fallout and its potential hazard to the world-wide population, that the need to study the whole problem of radiation and its effect on the health of each individual became an urgent matter. To meet this challenge, the authorities in all the major countries, in many cases working together, and employing the best-trained people in the various disciplines, co-operated in defining the various areas of the radiation problem. The British and American reports of 1956 and 1958 and the report of the United Nations Scientific Committee on the effects of atomic radiation are major events in the story.

Canada was one of the first countries, if not the first, to consider the broad field of radiation protection as a public health matter. Viewed as an environmental problem, radiation exposure is divided almost equally between natural background radiation and man-made exposures. Of the latter, the bulk is derived from the medical and dental use of X-rays in diagnostic procedures with smaller contributions from occupational exposures, fallout, and miscellaneous sources such as shoe-fitting fluoroscopes, radium luminous watches and instrument dials, etc. The areas are now well-defined and placed in proper proportion, but all remain to be fully explored and constantly observed for the changes wrought by time.

Local changes of natural background require long-range studies. The special problems of industrial radiation exposures and their control require attention. Health supervision in the form of physical and chemical laboratory measurements, clinical observation and judgment have opened new fields in public health. The judicious application of radiation in the medical fields and a constant search for methods that will reduce unnecessary exposure have become the responsibility of every physician. His guidance must come from those in the field of public health.

Some aspects of environmental radiation protection, notably the measurement of fallout, appear to be best centralized at federal level because of the international implications. On the other hand, there are other features where the interests of the individual provinces and communities are involved, and there is ample scope for their participation. For example, the control of environmental hazards associated with the establishment of power reactors in this country invites participation of provincial and municipal health departments. Industrial and medical uses of isotopes call for similar attention.

Because many uncertainties remain concerning the quantitative aspects of the long term effects of radiation, such as the production of malignancies and of genetic mutations, we have as a further challenge wide programs to be developed in statistical studies, physical measurement and biological research.

Emergency Health Services

Another field in which there is a major challenge to the disciplines represented here today, is that of emergency health services. These are the services required for natural disaster and around which plans will be developed to deal with the vast problems associated with a war emergency. It is our view that emergency health services should be considered as a continuing responsibility of official health agencies at all levels. If this is accepted, these agencies would make maximum use of existing facilities and services and would include additional staff with special training to supplement and co-ordinate Departmental activity.

Emergency planning would involve practically the whole field of health, and physicians, dentists, pharmacists, veterinarians, engineers, industrial hygienists, nutritionists, and most other professional health personnel would have to be mobilized, trained, and equipped to handle major disaster situations. Hospital administrators would have a key role in making and testing hospital disaster plans which would include emergency arrangements in existing hospitals, and the setting up of improvised units. The development and supervision of such a program must be co-ordinated with existing health arrangements and this type of planning appears to be a logical extension of the work of official health agencies. In carrying out this task, a close working relationship would have to be established with professional and voluntary health associations, faculties teaching the health professions in universities, medical laboratories, pharmaceutical manufacturers, and any other groups with resources which need to be dovetailed into the over-all emergency plan.

During the past eight years, the federal Civil Defence Health Services has been occupied in planning to meet health problems occurring in disaster and accumulating a multi-million dollar stockpile of essential health supplies. In addition, much of its time and energy has been devoted to the training of health workers. Nursing schools in all provinces, all the schools of pharmacy, and many of the schools of medicine, include short courses of instruction in the role of the particular profession in an emergency. At the Civil Defence College at Arnprior, courses have been held for physicians, dentists, veterinarians, pharmacists, nurse educators, and nurse specialists.

Provincial and municipal arrangements vary considerably across the country. A few provinces and cities have full- or part-time professional staff, but many are without such personnel.

While much has been accomplished, a great deal more needs to be done before the health professions are prepared for their roles in disaster. This presents a considerable challenge to all of us in public health and represents a major extension in activity for the future.

A Career Service in Public Health

Finally, a few words about a career service in public health. Such a service would include assurance of interesting and challenging work; opportunity for advancement; training privileges; and adequate remuneration.

In Canada, important progress has been made in the development of a career service, but certain objectives have yet to be realized. There is no doubt that in most circumstances, an interesting and challenging field of endeavour can be portrayed for the various disciplines interested in public health. In many circumstances, it is possible to indicate good opportunity for advancement. However, in this regard, there are factors which limit movement between the various health units and services at different levels. For example, an engineer employed in a city health department might hesitate to accept an appointment at provincial or federal level because pensions and other benefits are not transferable. Greater opportunity for advancement would certainly be provided if techniques could be worked out for an interchange of personnel without loss of benefits.

Another matter which is important is training privileges. It should be possible to indicate to a new recruit that after a period of satisfactory service, additional training would be provided to qualify the individual for senior appointment and make him more valuable to the public health effort. This is being accomplished in large measure through assistance provided by the Health Grants but here again there are gaps in the program which prevent, in some cases, the inclusion of training privileges as an encouragement in recruitment.

While remuneration in the field of public health has lagged behind other special areas, nevertheless substantial improvement has been made. There appears to be a greater acceptance of the principle that professional and technical personnel in this field should be remunerated on a basis equivalent to that in industry. The gap is narrowing, but further gains need to be made.

I would like to emphasize that substantial progress has been made in the setting up of a career service in public health in Canada and the future looks bright. I am sure that it holds a great deal of challenge and opportunity for all of you. Your experience at this School will greatly enhance your prospects and I wish you the utmost of success in the future.

World Refugee Year

This is World Refugee Year. Its aim is to focus attention on the refugee problem throughout the world, thereby encouraging additional opportunities for permanent refugee solutions through voluntary repatriation, resettlement or integration.

The Laboratory Diagnosis of Virus Infections with Particular Reference to the Role of Public Health or Hospital Laboratories in Canada[1]

D. M. McLEAN,[2] A. J. RHODES,[3] F. P. NAGLER,[4] V. PAVILANIS,[5] J. C. WILT[6]

DURING the past decade, as a result of the widespread application of tissue culture techniques to virology, at least 100 new human viruses pathogenic for man have been identified in the laboratory. Only five infections of presumed viral etiology remain in which a transmissible agent has not been isolated in the laboratory, namely warts, infectious hepatitis, serum hepatitis, rubella and the common cold. By the use of the newer technical methods in virology, it has become practical for many laboratories in public health departments and teaching hospitals to offer virus diagnostic services to practising physicians. A rapid and readily available diagnostic service benefits physicians in at least two ways: first, virologist and physician alike will gain a clearer understanding of the etiology of well defined clinical syndromes. Secondly, the clinical management of the patient will be facilitated and a more accurate prognosis may be given.

Location of Virus Laboratories

Specimens for virological examination may be submitted by physicians to the Laboratory of Hygiene, Department of National Health and Welfare, Ottawa, or to the Provincial Laboratories maintained in the capital city of most provinces. In British Columbia the Provincial Laboratory is situated in Vancouver and in the provinces of New Brunswick and Prince Edward Island specimens for virus study should be forwarded to the Nova Scotia Provincial Laboratory, Halifax. Furthermore, virus laboratories maintained in several teaching hospitals throughout Canada provide virus diagnostic services for hospitalized patients under the care of physicians on the staff of these hospitals. Also, several university departments of microbiology or bacteriology provide virus diagnostic services, often in connection with projects involving virological examination of human material collected during field surveys.

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[1]Report of a panel discussion held at the Jubilee Meeting of the Canadian Public Health Association, Montreal, June 1–3, 1959; Chairman, Dr. A. J. Rhodes.

[2]Virologist, The Hospital for Sick Children, Toronto.

[3]Director, School of Hygiene, University of Toronto.

[4]Chief, Virus Laboratories, Laboratory of Hygiene, Department of National Health and Welfare, Ottawa.

[5]Chief, Virus Section, Institute of Microbiology and Hygiene, University of Montreal.

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General Principles of Diagnostic Virology

The virus laboratory provides assistance to physicians in the diagnosis of a wide variety of infectious diseases. The principal clinical entities in which virus diagnostic tests have given satisfactory results are shown in Table 1. It will be seen that the common virus diseases except measles, rubella, chickenpox, infectious hepatitis and serum jaundice, may be investigated satisfactorily by the use of techniques currently available.

The virologist uses both direct (isolation) and indirect (serological) tests to establish a laboratory diagnosis of virus infection. The direct tests are of two varieties: first, those tests in which virus elementary bodies are demonstrated by microscopy of diseased tissue such as skin lesions or conjunctival scrapings, and secondly, tests in which the infective agent is transmitted to mice, or eggs, or tissue cultures. Wherever possible the virologist undertakes direct isolation of the causative virus as the principal means of laboratory diagnosis.

The indirect tests are those in which the level of antibody for a particular virus is detected in the patient's serum. The three tests most frequently employed for detection of antibody are neutralization (NT), complement fixation (CF), and haemagglutination inhibition (HI). In all cases in which virus diagnosis is attempted by indirect serological methods, every attempt should be made to obtain paired sera, an acute phase sample being obtained as early as possible after onset of symptoms and a convalescent phase sample two to three weeks later. Acute and convalescent phase sera should always be tested together in the same batch of tests. A fourfold or greater increase in antibody titre usually indicates recent infection with the virus in question.

Collection and Shipping of Specimens

In laboratory virus diagnosis, it is most important that the physician collect suitable specimens. Specimens which are submitted for attempts at virus isolation should be obtained during the phase of illness that they are most likely to contain virus in high titre. For example, throat washings for attempts at isolation of influenza virus should be collected not later than 48 hours after onset of fever, whereas poliomyelitis virus has been isolated on many occasions from faeces taken as late as 7 to 10 days after onset of meningeal symptoms.

The specimens submitted for virus isolation from cases of influenza or other acute respiratory disease are throat washings, throat swabs (in infants), or occasionally sputum. Faeces is submitted from cases of poliomyelitis, aseptic meningitis, pleurodynia or pericarditis. Cerebrospinal fluid is sent from cases of aseptic meningitis. Whole blood is tested from cases suspected of being infected with rickettsiae.

Specimens for virus isolation should be submitted to the virus laboratory immediately after they are obtained. If some delay in delivery of specimens to the laboratory is anticipated, the material should be held at 4°C in a domestic refrigerator for a period not exceeding 24 hours. If specimens such as cerebrospinal fluid, serum or throat washings are to be sent over considerable distances they should be kept cool in a vacuum flask containing ice cubes or

commercially available solid cooling agents. Where possible the specimens should be shipped by "air express". If specimens are likely to be in transit longer than 48 hours, they should be shipped in a vacuum flask containing dry ice. Faecal samples forwarded for virological examination should be mailed in containers supplied by Provincial Laboratories, since viruses remain viable for long periods in faeces at room temperature. Avoid mailing or shipping any specimen at weekends or on holidays.

On receipt at the laboratory, specimens of throat washing, faeces, and cerebrospinal fluid are placed immediately in the "deep freeze" at about −20°C until tested. If possible, throat washings and cerebrospinal fluids should be inoculated into the appropriate laboratory host on the day of receipt without freezing. Serum should be separated from the clot prior to storage in the frozen state. It is advisable to add 1 ml. of beef heart infusion broth or skim milk to each 10 ml. of throat washings before shipping.

Significance of Virus Isolation

The etiological significance of virus isolation varies according to the virus and the pathological specimen. For example, isolation of a virus from the site of the pathological process, such as the brain in the case of encephalitis or the cerebrospinal fluid in the case of aseptic meningitis, provides direct evidence of etiological association with the current illness. If influenza virus is isolated from the throat washings of a patient ill with influenza, this strongly suggests that the virus induced the illness, because this agent is only found in throat washings in cases of acute influenza. In contrast, the excretion of an enteric virus in the faeces of a patient suffering from aseptic meningitis or pleurodynia, does not in itself indicate an etiological relationship; other evidence of concurrent systemic infection is required. Such additional evidence of infection is obtained by the demonstration of a rising titre of neutralizing antibody against the virus isolated from the patient. Viruses such as the enteroviruses may occasionally be found in the faeces of healthy individuals. In Canada, however, it is uncommon to isolate these viruses from faeces except in cases of paralytic poliomyelitis, aseptic meningitis, epidemic myalgia, myocarditis, pericarditis, or herpangina. Moreover, the isolation of the same antigenic type of virus from several patients during an epidemic is good presumptive evidence of an etiological association between virus and disease.

Roles of Federal, Provincial and Hospital Laboratories

The Virus Laboratory of the Laboratory of Hygiene, Department of National Health and Welfare, Ottawa, in addition to providing full virus diagnostic services to physicians in the Ottawa region and to several military establishments, fulfils an important consultative role for provincial virus laboratories. The Ottawa laboratory acts as a reference center for identification of Coxsackie, ECHO, influenza, adenovirus and pox viruses which are submitted by the directors of provincial laboratories. The Laboratory of Hygiene also prepares and distributes killed antigens for the diagnosis of the following infections by complement fixation tests: influenza, mumps, adenovirus, Q-fever.

Rocky Mountain Spotted fever, rickettsialpox, murine typhus, psittacosis and lymphogranuloma venereum. The Ottawa laboratory also serves as a regional laboratory for collection and identification of influenza virus strains under the auspices of the World Health Organization.

An increasing number of provincial departments of health have established virus diagnostic units in their public health laboratories. These virus diagnostic units attempt isolation of virus from materials submitted, using tissue culture or other laboratory hosts, according to their availability. If further identification of newly isolated viruses cannot be undertaken locally, these isolates are forwarded to the Laboratory of Hygiene in Ottawa. Provincial virus laboratories are supplied with complement fixing antigens by the federal Virus Laboratory, so that diagnosis by serological means may be undertaken.

In a teaching hospital virus laboratory a full range of services may be offered to physicians, provided that it is clearly understood that the virologist acts as a consultant who discusses each case with the medical staff in order to select the most appropriate tests under the circumstances.

DIAGNOSTIC METHODS:

Rickettsial Infections: The two rickettsiae which are known to cause human infections in Canada are: *Coxiella burnetii* of Q-fever and *Rickettsia rickettsii* of Rocky Mountain spotted fever. *R. rickettsii* may sometimes be isolated from the blood of spotted fever patients during the febrile period. Whole blood is inoculated intraperitoneally into guineapigs which develop a fever lasting for several days and later complement fixing antibody may be detected in the blood. Scrotal swelling with haemorrhages into the tunica vaginalis (Neil-Mooser reaction) may occur following intraperitoneal inoculation of *R. rickettsii* but not *C. burnetii* organisms in guineapigs. A diagnosis of human infections with both these rickettsiae is more simply achieved by demonstrating a fourfold or greater increase in complement fixing antibody titre in serial blood samples. Convalescent phase serum obtained from spotted fever patients causes agglutination of Proteus OX19 organisms (the Weil-Felix reaction).

Respiratory Tract Viruses: Epidemic spread of some antigenic variety of influenza virus occurs in Canada almost every winter. In diagnosis, throat washings obtained from patients less than 48 hours after the onset of fever are mixed with antibiotics and inoculated into the amniotic cavity of 13-day-old chick embryos. Following incubation of the eggs at 32 and 37°C for 4 days, virus may be demonstrated by testing the ability of amniotic fluid to cause agglutination of mammalian red cells, although sometimes one or two "blind" passages are required before the virus is demonstrated. The virus is typed by complement fixation or haemagglutination-inhibition tests with appropriate antisera prepared against standard strains of influenza virus. Rising titres of antibody in paired sera confirm recent infection with influenza virus.

Respiratory infections due to other viruses occur frequently during winter. The adenoviruses and haemadsorption viruses may be isolated from throat washings by inoculation of HeLa cell cultures or monkey kidney cultures. The former stimulate production of large intranuclear inclusions and the tissue culture medium is turned acid, whilst the latter induce syncytial formation in

tissue culture cells to which red corpuscles adhere readily, and the tissue culture medium may also cause agglutination of erythrocytes. Rising titres of complement fixing antibody during convalescence indicate recent infection with these viruses.

Although psittacosis occurs uncommonly in Canada, it is important that a diagnosis be established, since the condition may be treated with the tetracyclines. Virus may be isolated by inoculation of emulsified sputum into the yolk sac of chick embryos. Diagnosis is made most conveniently by the demonstration of a fourfold or greater increase in complement fixing antibody in paired sera. Since treatment with antibiotics may delay the appearance of complement fixing antibody, it is important to obtain a second blood sample at least one month after onset of illness.

Enteroviruses: In poliomyelitis, a presumptive etiological diagnosis may be made by isolation of poliovirus from the faeces. An extract of faeces is shaken with balanced salt solution, centrifuged at 2500 R.P.M. for 30 minutes to remove bacteria, and virus is deposited from the supernatant by further centrifugation at 40,000 R.P.M. for 1 hour. This ultracentrifuged deposit is resuspended in tissue culture maintenance medium and inoculated into tissue culture tubes. Cytopathogenic effect which occurs 2 to 7 days after inoculation of cultures indicates the presence of virus in the faeces. The new isolate may be identified as a poliovirus by showing that it is neutralized by antiserum prepared against one of the three types of poliovirus. In order to confirm that the patient was infected with that particular type of poliovirus at the time of illness, it is necessary to demonstrate a rising neutralizing antibody titre against the same antigenic type of poliovirus.

Exactly the same procedures are followed for the etiological diagnosis of conditions such as aseptic meningitis which is frequently due to infection with a Coxsackie B or an ECHO virus. Etiological diagnosis is simplified if virus is isolated from the cerebrospinal fluid.

Encephalitis Viruses: In a patient with epidemic encephalitis who survives beyond the first week of illness, a presumptive diagnosis may be made if a rising titre of complement fixing antibody against a known arthropod-borne virus such as St. Louis encephalitis or western equine encephalomyelitis is demonstrated. If sera are obtained more than two weeks apart, an increased level of neutralizing antibody may also be detected in the later serum. If an encephalitic patient should die within one week after onset, virus may be isolated from cerebral cortex or brain stem by inoculation of a saline suspension intracerebrally into newborn or weaned mice. If an encephalitis virus is present, the mice develop encephalitis and die 2 to 10 days after injection. In general, Casals' group A viruses such as eastern and western equine encephalomyelitis kill mice 2 to 4 days after injection, whereas viruses in Casals' group B, such as St. Louis encephalitis and the newly described Canadian Powassan virus, kill mice 5 to 10 days after injection. A new virus is identified by demonstrating the capacity of antiserum prepared against one known encephalitis virus to neutralize the new strain, or to fix complement in the presence of the new strain, or to inhibit the agglutination of chick red cells

TABLE I—CLINICAL ENTITIES IN CANADA FOR WHICH VIRUS DIAGNOSTIC TESTS ARE AVAILABLE

Clinical Group	Disease Entity	Specimens submitted for Virus Isolation	Virus Isolation Tests	Serological Tests
Rickettsial diseases	Q-fever	clotted blood	guineapig, chick embryo	CF
	Rocky Mountain spotted fever	" "	"	CF, Weil Felix
	rickettsialpox	" "	"	" " "
	murine typhus	" "	"	" " "
Respiratory diseases	influenza	throat washings or throat swab	chick embryo	HI, CF
	mumps	"	" "	" "
	adenovirus	"	HeLa tissue culture	CF
	haemadsorption virus	"	monkey kidney, HeLa tissue culture	CF, HI
	psittacosis	sputum	chick embryo	CF
Eye diseases	trachoma[1]	conjunctival scrapings	chick embryo	CF
	inclusion conjunctivitis[1]	"	none	none
	keratoconjunctivitis	eye swab	HeLa tissue culture	CF
Skin diseases	herpetic eruptions	skin lesions	chick embryo or suckling mice or HeLa tissue culture	NT
Exanthemata	smallpox	skin scrapings or exudate	chick embryo	NT, CF
Coxsackie infections	aseptic meningitis	faeces, cerebrospinal fluid, throat washings	monkey kidney tissue culture[3]	NT
	herpangina	faeces, throat washings	"	"
	myocarditis and pericarditis	"	"	"
	pleurodynia	"	"	"
ECHO infections	aseptic meningitis	faeces, cerebrospinal fluid, throat washings	monkey kidney tissue culture[3]	NT
Neurotropic infections	poliomyelitis	faeces, throat washings	monkey kidney, HeLa tissue culture[3]	NT
	rabies[2]	brain, saliva	mouse	none
	B virus infections	brain	monkey kidney tissue culture	NT
	encephalitis due to arthropod-borne viruses	brain, clotted blood	suckling mouse	NT, CF, HI

NT: neutralization test
CF: complement fixation test
HI: haemagglutination inhibition test
1. conjunctival scrapings should be examined for inclusion bodies
2. brain should be examined for Negri bodies
3. human amnion tissue cultures may be used instead of monkey kidney tissue cultures

by the new strain. By these means Powassan virus which was recovered from the brain of a fatal case of encephalitis in September 1958 was shown to be related to but distinct from Russian spring summer encephalitis virus.

Pox Viruses: Owing to the highly contagious nature of smallpox, rapid virological diagnosis of the first few cases in an epidemic is essential. During the maculopapular and vesicular stages, examination of scrapings of skin lesions stained with methyl violet (Gutstein's method) reveals numerous virus particles (elementary bodies). Elementary bodies may also be seen in scrapings of skin lesions of vaccinia or cowpox, but they are not readily found in chickenpox. Virus may be isolated from the skin at all stages of the eruption: from scrapings in the maculopapular or vesicular stage, from vesicle fluid, from pustular fluid and from scabs. Virus recovery is made by inoculation of material on the chorioallantois of 11 day chick embryos. After 3 days' incubation, small discrete circular pocks without necrotic changes or haemorrhage into the surrounding tissue, are found. However, a diagnosis may be made within 24 hours by demonstration of complement fixing antigen in saline extracts of vesicle scrapings, scabs, vesicular and pustular fluid.

Summary

Virus diagnostic facilities are now readily available to physicians through federal, provincial and some university and teaching hospital laboratories throughout Canada, for the diagnosis of viral infections. By the use of correct procedures for isolation of virus and determination of antibody levels, the etiological diagnosis of well-defined syndromes of presumed viral origin may be accomplished efficiently.

Résumé

Le diagnostic des maladies à virus peut être effectué partout au Canada, grâce aux laboratoires fédéral et provinciaux, et à certains laboratoires universitaires ou hospitaliers qui sont à la disposition des médecins.

Par des techniques précises d'isolement des virus et de détermination des taux d'anticorps, on peut poser le diagnostic étiologique de syndromes définis dont l'origine virale était soupçonnée. (Trad.: Dr M. Panisset.)

Nutrition and Older People[1]

E. W. McHENRY,[2] M.A., Ph.D.

WHEN I began to consider material to be used under the announced title I became uneasy about the meaning of the world "older". Do we mean people who have retired from active work or people who should retire? Do we mean persons of 80 who are mentally and physically active or do we include persons of 60 who are already old crocks? For the present discussion it may not make much difference. I do wish that we could be more explicit in the fashionably popular discussions on the problems of elderly people.

On a number of occasions in the past few years I have been asked to speak about nutrition and older people. Until the present program I have politely quoted a statement by an erstwhile professor of medicine at Harvard to the effect that the main needs of elderly people are less food, more warmth, and less work or activity. I do not propose to use that statement as a text now and I shall probably never use it again. It is probably satisfactory to say that elderly people need less food. It is advisable to be careful about stating that elderly people need more warmth. Elderly people seemed to be particularly bothered by the wretched heat in Toronto this summer. Some elderly people I have encountered recently would be better off with more activity. The happiest elderly people I know—and the best mentally—are the ones who have continued to be remarkably active. One method of improving the health of elderly people would be to encourage more activity. They do not need to be as sedentary as our young adults!

I propose to summarize briefly the guesses currently made about the nutritional needs of older people. One of the odd points these days is that research and discussions on geriatric problems are very popular but very little good information is available regarding nutritional requirements.

Maintenance energy need decreases with age since basal metabolism slowly declines as we grow older. Many elderly people become less active. For such individuals the total calorie requirement is less and an average estimate would be 1,800–2,000 per day for women and 2,000–2,200 for men. These estimates are for persons over 65 who have decreased activity. About 400 calories a day could be added for persons who are definitely active.

There has been considerable discussion about the protein needs of elderly people and about the failure of elderly people to ingest adequate amounts of protein. Actually, we have no valid information about protein requirements in elderly persons. It is assumed that protein needs do not decline with age after growth ceases. In recent years concepts of protein requirements have

[1]Presented at the annual meeting, Ontario Public Health Association, Sept. 28–30, 1959, Toronto, Ont.

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become more realistic and are certainly based on better evidence than was formerly available. It is now stated that average protein requirements for adults are about 30–35 grams a day if all of the protein is complete and about 50–60 grams a day with an assortment of complete and incomplete proteins such as is used in Canada. For want of contrary evidence we assume that these estimates are suitable for elderly people.

As in the case of protein there has been some concern about the calcium intakes of elderly people. The opinion has been expressed that fragility of bones in some elderly people may result from chronic insufficiency of calcium with consequent withdrawal of calcium from the bones. Little or no evidence is available to support this plausible contention. We do know that calcium excretion continues throughout life and that this daily loss should be compensated for by intake. It is known that children and young adults can adapt themselves to comparatively low intakes of calcium by increasing the efficiency of absorption and by decreasing renal loss. It is not known whether such adjustments can take place in elderly people. In the light of present information I think it is wise to recommend intakes of 0.5–0.6 grams of calcium a day for persons over 65. Equal supplies of phosphorus would be advisable.

Adults can be maintained in health with very small intakes of iron provided there is no marked loss of blood. Elderly men and women probably need less than 6 milligrams of iron a day if there is no hemorrhage. However, we are not certain about the amount of iron absorbed by elderly people. Intakes of 6–10 milligrams of iron a day would be safe and perhaps advisable.

Little or no information is available regarding vitamin requirements of older persons. It could be guessed that vitamin needs are about the same throughout adult life. On this basis, 5,000 units of vitamin A would be recommended as a suitable daily intake. Requirements for B vitamins vary with calorie needs. Using the previously mentioned calorie estimates we would set forth B vitamin requirements daily as thiamine 0.5–0.7 milligrams, riboflavin 0.9–1.2 milligrams, niacin 5–7 milligrams.

So far as is known, vitamin D is not needed by elderly people. Our current estimate of adult need for ascorbic acid, 30 milligrams a day, likely applies to elderly people.

In translating estimates of nutrition requirements into food selection for elderly people, I prefer to use Canada's Food Rules as a guide. On that basis food recommendations would be:

milk—one half to one pint a day of either whole or skim milk. Money could be saved by using skim milk powder.

fruit—an orange or half a grapefruit or four ounces of citrus juice (fresh, canned or frozen) per day. One other fruit should be included. This recommendation about fruit needs to be stressed.

vegetables—potatoes will, of course, be included. A wide variety of other vegetables should be used to make meals more interesting.

meat, fish, fowl—one serving a day is ample, particularly if milk and cheese are used liberally.

bread and cereals—not more than four slices of bread a day are needed by elderly people and the eating of more bread should be discouraged.

A breakfast cereal is an advantage in itself if it is a good cereal and it encourages the use of milk.

eggs—at least three eggs a week should be used.

cheese—the use of cheese should be encouraged, especially for the many older people who do not drink milk. Three or more ounces of cheese a week will provide protein and calcium.

In using such recommendations we will frequently encounter practical difficulties. The major one is the existence of rigid food habits, the formation of which probably started in childhood and which became more fixed as the years went by. It will not be easy to attempt to change rigid habits. While I would be in favour of doing what could be done tactfully, I would be opposed to making life miserable for elderly people. Perhaps the next generation will be less "ornery" with regard to eating.

Older people frequently have difficulty with chewing. The lack of desire to use dentures is familiar. Even if dentures are used, they may no longer fit properly. Meat is one food which may cause trouble and this can be prevented by the use of ground meat.

Foibles and beliefs in notions may prevent or limit the use of certain foods, particularly meat, cheese, milk and acid fruits. The physician can help greatly in dispelling notions about the harmfulness of such foods, particularly if he knows something about nutrition.

We have all heard repeatedly the statement that elderly people are living on tea and toast. We do not know whether this is true. I am sure that residents in homes for the aged in Ontario are receiving far more than tea and toast and that they are getting in most instances good meals. Little information is available about food use by elderly people living alone and more information would be desirable. We need to remember some of the problems faced by older people who are living alone: inadequate funds, inadequate cooking facilities and the dreary business of buying food and preparing it for one person plus the lonesomeness of eating alone.

In several cities in the United States programs have been under way for several years to distribute cooked meals to elderly people, particularly to those living alone. I do not know how successful are these undertakings and inspection of them by Ontario health officers and Ontario welfare personnel could be advantageous. I am more interested, personally, in another method of supplying meals for elderly people. Nutrition of elderly people who are living alone could be improved considerably if they had available one good meal a day with companionship to make the meal more pleasant. It is important that elderly people continue to feel useful and not cast-off "has-beens. It seems to me that a suitable program to help elderly, lonely people would be one which combined some activity which would make the person feel useful, which would provide companionship, and which would enable people to have one good meal a day. A program of this type has been in operation for some years in Toronto under the auspices of the Women's Patriotic League. My impression is that this program has had inadequate support and that there has been a failure of welfare people to show an interest in it. This type of

program has triple advantages for elderly people and only one of these advantages is furnished by the meal-distribution system advocated in American cities.

Elderly people are entitled to have peace, comfort and contentment. In relation to nutrition this means properly cooked meals nicely served in pleasant surroundings. Many elderly people dislike noise and tumult. To such people eating in the same room with modern children can be trying. This should be remembered by the in-between generation.

A statement which you may find unorthodox is that I think it is more important for elderly people to eat meals which they enjoy than it is to have meals which are nutritionally adequate. If tact and decent planning are used meals can be nutritionally adequate and pleasant at the same time. With tact, elderly people may be induced to eat such meals. Such should be our objective.

We should be concerned about refraining from doing things or providing food which could cause harm. Deterioration in the gastrointestinal tract may aid in the development of digestive upsets. These can be brought on in elderly people by eating too much starch, too much fatty foods, or highly spiced foods. This is the reason why I suggest that the eating of bread should be limited. Fried foods are better omitted.

One of the disturbing problems in nutrition is the fashionableness of special diets and their enthusiastic and indiscriminate use. No one would suggest that a physician should not attempt to preserve life. I doubt if some of the special diets prescribed for elderly people are essential to keep the patient alive. In some quarters in this province low-sodium diets are fashionable and they may become more fashionable now that at least one popular magazine is urging its readers to prolong their lives by using less salt. This is not intended to be an argument against the prescription of low-sodium diets when there is evidence to warrant their use. In a home for the aged near Toronto the attending physician has instructed the matron not to put salt shakers on any table in the dining room. Naturally, the residents are unhappy. I don't think this ruling is justified and I think the physician's enthusiasm for a dietary notion is helping to make life miserable for a number of elderly people. These elderly folk are entitled to comfort and contentment. A good physician should be concerned about his patients' comfort. Dietary fads should not be inflicted on people without good reason.

It is clear to all of us that no organization is fashionable these days unless it sponsors discussions on geriatrics. In the last few years Toronto has seen a number of symposia on the care of the elderly. Perhaps the time has arrived for us to attempt to obtain some factual information to provide a better base for future discussions. I can think of a number of questions which I would like to suggest to you. How many elderly people are there in Ontario who need assistance to make life healthier and more comfortable? What is the best way to help these people? In the field of nutrition my questions can be more specific. A senior clinical colleague in the University came to me a short time ago and stated: "There is a great amount of protein deficiency among elderly people in Toronto; what are you doing about it?" I asked him how he

knew there was so much protein deficiency. His answer was, "There must be—the people are living on tea and toast." I suggested to him that we don't know whether the situation which he described actually exists. It would be helpful if we did know. It seems to me that it would be useful if we could try to obtain the basic information which we need for intelligent discussion. So far as nutrition is concerned a great deal of basic information is needed. The following questions come to mind:—How much protein do elderly people need to maintain balance and to prevent wasting? What is the efficiency of digestion and absorption of such nutrients as protein, calcium and iron in elderly persons? What are the nutritional problems among elderly people in Ontario and how prevalent are they?

I submit to you the suggestion that discussions on geriatrics would be more useful if we knew what we were talking about.

Multiple Hospital Admissions in Saskatchewan in Relation to the Negative Binomial Distribution

J. D. RAMSAY,[1] M.B., Ch.B., D.P.H.

THE problem of patients who are hospitalized more than once in a given interval of time has been investigated previously in this province (1). While the question of repeated admissions is a highly intricate one, involving the interplay of numerous factors, many of which are probably not of a medical nature, the numerical pattern displayed is constant and of ancient vintage.

Investigations into accident proneness show that the probabilities of sustaining no accident, one accident, two accidents, etc. correspond, with a variable degree of accuracy, to the probabilities determined by the Negative Binomial Distribution. These probabilities are derived from the terms of the expansion

$$q^{-k}\left[1 + k\frac{p}{q} + \frac{k(k+1)}{2!}\left(\frac{p}{q}\right)^2 + \ldots\ldots \frac{k(k+1)\ldots\ldots(k+r-1)}{r!}\left(\frac{p}{q}\right)^r + \ldots\ldots\right]$$

where $$q = 1 + p = \frac{s^2}{\bar{x}}, \text{ and } k = \frac{\bar{x}}{p}.$$

A comprehensive review of the Negative Binomial and allied distributions was given recently by Gurland (2).

Reviewing the data of the Saskatchewan Hospital Services Plan for the years 1954–58 inclusive, it is apparent that hospital admissions* are distributed in similar fashion.

The following table has been compiled from the appropriate annual reports (3), and the numbers falling into the category of "no admission" have been determined by subtracting the number of individuals hospitalized during any one year from the average covered population of that year.

Discussion

While these findings are not at all helpful in revealing the reasons for multiple admissions, it would appear that whatever these reasons might be their interaction leads, numerically speaking, to an end-result of classical design.

*S.H.S.P. data are based on hospital discharges: these may be regarded as admissions without any great loss of accuracy.

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SASKATCHEWAN HOSPITAL SERVICES PLAN: HOSPITAL ADMISSIONS—OBSERVED NUMBERS AND NUMBERS EXPECTED ON BASIS OF THE NEGATIVE BINOMIAL DISTRIBUTION

Number of times hospitalized	1954		1955		1956		1957		1958	
	Frequency									
	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.
0	682,197	683,594	695,703	697,153	702,583	704,047	694,391	695,958	729,722	731,310
1	101,857	98,311	100,891	97,228	101,180	97,447	104,951	100,994	107,066	103,086
2	19,164	21,379	19,098	21,410	19,629	21,934	20,468	22,835	20,791	23,153
3	4,766	5,174	4,875	5,290	5,060	5,570	5,145	5,779	5,255	5,844
4	1,414	1,315	1,474	1,378	1,592	1,495	1,692	1,540	1,601	1,556
5+	848	473	915	497	1,030	581	1,051	592	1,109	598
Maximum cumulative percentage difference	.265		.269		.273		.289		.277	
Kolmogorov-Smirnov critical value ($\alpha = 0.05$)	.256		.212		.211		.211		.207	

It will be noted too that this does not serve as a predicting mechanism; there is no way of forecasting what the average number of hospitalizations per individual will be, or what will be the variance, in any given year. An analogy might be drawn to the situation in which it is known that a normal distribution will result. The mean and variance must be established before values can be predicted for any class interval.

It was pointed out (1) that as the population ages and persons with chronic disorders are kept alive, the problem of repeated hospital admissions might be expected to increase. With more provinces embarking upon hospital insurance programs it is suggested that this area of multiple admissions is one which should be extensively analyzed and recorded.

Tabulations might profitably be made whereby number of times admitted is cross-classified with (a) number of patients, (b) age and sex, (c) patient-days and (d) diagnosis.

The last named category raises the problem of the patient with multiple admissions who has a different diagnostic label on each occasion. If this combinational aspect is ignored, and the data confined to the diagnosis on each hospitalizing episode, this cross-classification would lend itself to analyses pinpointing those disease categories with higher-than-expected numbers in the multiple admission classes. Such information could conceivably help in assessing the need for chronic-care beds.

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Sewage Lagoons in Manitoba[1]

L. A. KAY[2]

THE current accelerated interest in the municipal waterworks and sewerage fields not only in this province but across the country has led to a very critical survey of sewage treatment—its importance in controlling gross pollution of watercourses, its significance as a public health hazard or nuisance and finally, its cost in terms of both capital expenditure and operation.

Over ten years ago the State of North Dakota seriously considered shallow open ponds for the treatment of raw sewage, referring to them as sewage lagoons in order to differentiate between these and oxidation ponds used in the southern states for further conditioning of sewage effluent. Both types are commonly included under the term "waste stabilization pond". The sewage lagoon is basically an aerobic process even though anaerobic conditions may prevail during the winter months. A natural further stage of development, activated by the apparent effectiveness of lagoons under ice cover, will likely be ponds of very short retention periods operating entirely in an anaerobic environment.

This discussion will be limited to the history and development of aerobic sewage lagoons and their place in the field of municipal utilities. It is estimated that in North Dakota there are over 100 such installations, in Alberta about 80, and in Saskatchewan and Manitoba a total of 60. In our province it can safely be said that the acceptance of sewage lagoons as a satisfactory method of sewage treatment has been the most important single development in the post-war years.

How effective is Lagooning?

The U.S. Public Health Service in 1957 published a two-volume report entitled "Sewage Stabilization Ponds in the Dakotas". Some of the conclusions may be summarized thus:

(i) The process involves a complex biological-chemical relationship between algae and bacteria.
(ii) Under ice-cover algael activity is almost negligible; stabilization is accomplished by physical action and anaerobic bacterial activity.
(iii) Reduction in BOD ranged from 74 to 98% during open water seasons, and from 70 to 96% under ice.
(iv) Significant factors are: strength and type of sewage, loading per unit of area, sunlight and temperature, depth, inlet and outlet structures, soil characteristics.
(v) The cost per capita ranged from $4.40 to $37.94.

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[1]Condensation of a paper prepared for the eighth annual Institute for Sanitary Inspectors, University of Manitoba, March 1958.

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(vi) The reduction in coliform density (MPN) was greater than 99% for more than half of the time and, except for two isolated instances, was 95% or greater at all times.

(vii) There was need for more research regarding: specific loading limits for different climates, optimum operating depths, methods of varying the operating depths seasonally, clarification of the effluent (algael removal), possible effect of highly mineralized water supplies, odour control during critical seasons (generally spring), sealing of permeable strata in the lagoon bottom, control of excessive evaporation.

From these conclusions it can be readily seen that sewage lagooning shows great promise as a relatively cheap method of domestic waste treatment but many factors require further investigation and study. One of the more significant problems encountered in Manitoba is the matter of admixture of industrial waste with domestic sewage, a situation that could arise in any small community interested in attracting industry. As an example we might note that in one town of about 1,500 population a six-acre single-cell lagoon was more than adequate for all domestic waste. With the construction and operation of a poultry-eviscerating plant, the normal condition of the lagoon was disturbed to the extent that nuisance conditions prevailed and the problem has not been entirely cleared up with the addition of another ten-acre secondary cell.

The Functioning of the Lagoon

In this extreme climate we must keep in mind that ice may cover the lagoon for four months of the year, and during that time, the photosynthetic effect of sunlight on algael development is missing, therefore whatever action does take place depends largely on anaerobic bacterial activity and plain sedimentation. During the summer, an entirely different action takes place and we should expect the development of an algael "bloom"; which, in turn, may provoke a secondary problem in regard to its removal.

In the interval between winter and summer, as the ice cover is melting and sunlight reaches the depths of the liquid, there is more than a reasonable chance that some odours—of raw sewage or septic waste as the case may be—will develop. This condition will last, it is variously estimated, from two to six weeks.

From our contacts in the south we learn that sodium nitrate may solve the worst of the odour control problem if administered at the rate of 100 lb. per acre per 24 hours (for the first three days), and afterwards, at half this rate until the worst of the condition is over. This chemical costs, in Winnipeg, $5.50 per 100 lb.

Indices for Comparison

In discussing the effectiveness of sewage treatment it is useful to prescribe the various tests which might be used as a basis for comparison. In this review, we might limit these to two simple indices, biochemical oxygen demand (BOD) and the coliform content per 100 ml. In this case, the coliform content is an indication of dangerous bacterial contamination, therefore a substantial reduction should be made in any effective method of sewage treatment (although it may not be too significant in dealing with industrial wastes).

If a more generally applicable yardstick is required, the biochemical oxygen demand will serve, generally, for both domestic sewage and for industrial wastes. The strength of both the raw and effluent sewage or waste can be measured by a specific laboratory determination. For rough estimating purposes, it may be assumed that each person contributes an average of one-fifth of a pound of BOD per twenty-four hours.

Design Criteria

Perhaps the best way to examine the various design factors is to list our suggestions, as prepared in 1955, with the recommendations contained in the USPHS report and our own current conclusions:

	Manitoba Dept. Health 1955	USPHS	Manitoba Dept. Health 1959
A. *DESIGN BASIS*			
a. *Size*	1 acre per 100 people	1 acre per 100 people	1 acre per 200–250 ppl.
OR			
	120 days' storage	1 acre per 20 lb. BOD	1 acre per 40–50 lb. BOD plus storage as required to total 60–120 days
b. *Extent*	Minimum 1 acre Maximum 40 acres (in 1 cell)	—	No minimum Over 10 acres consider division into cells in parallel
c. *Depth*	Maximum 5 feet Minimum 3 feet	Maximum 5 feet Minimum 3 feet	Maximum 4 feet and depth adjustable between 1 and 4 feet
d. *Freeboard*	Minimum 3 feet	Minimum 3 feet plus frost heave	Minimum 3 feet (consider effect of wave action)
e. *Berm Width*	8 to 10 feet	Minimum 8 feet	8 to 10 feet
f. *Inner Slope*	1:4	1:6 to 1:3	Pref. 1:6 but not greater than 1:4
g. *Outer Slope*	—	—	Sufficient to provide stability
h. *Pond bottom*	Relatively impermeable. Allowable seepage rate 1/8 to 1/4 inch per day	Relatively impermeable	Minimum seepage; if in doubt process bottom or line with impermeable sheeting
B. *INLET AND OUTLET*			
a. *Inlet*	Pipe should be on bottom or in bottom, discharging at center	Center discharge	Pipe on or in bottom; center discharge to flat concrete pad; no turn up
b. *Outlet*	Install overflow	—	Install overflow structure to vary depth between 1 and 4 feet
c. *Manholes*	—	Manhole recommended where inlet passes through embankment	Manhole recommended at or near embankment

C. *LOCATION*			
a. *Distance*	Not less than ½ mile from nearest habitation	Not less than ¼ mile from nearest residence	Not less than 1,000 feet from center of population; individual residences as close as 350 feet depending on local conditions
b. *Wind*	Down-wind from populace	Unobstructed wind-sweep	Preferably wind-swept and down-wind from center of population but distance and size can be varied to overcome these difficulties
c. *Topography*	Wind action not affected by hills	Avoid low spots where excessive run-off may prejudice structure or operation	Flat terrain preferable; divert storm water and consider and seal-off high water table

General Considerations in the Planning and Operation of Lagoons

Lagooning of Sewage Effluent: Lagooning as a secondary stage of treatment should be feasible; and generally speaking, a size should be adopted to provide 75% of the surface area which would be prescribed for an equivalent loading of raw sewage lagooning.

Industrial Wastes: The lagoon should be sized in accordance with the factor of 40 to 50 lb. of BOD per acre PLUS an allowance for recognition of the particular type of waste to be treated. An admixture of domestic waste is desirable. Industrial waste lagooning should be a responsibility, both as to design and operation, of the user agency.

Vegetation in and Around Lagoon: Any natural vegetation or growth should be removed from the inside of the lagoon. The berm and embankment slopes (above water level) should be cultivated and seeded (but not with alfalfa) and the growth periodically cut or trimmed. Aquatic and limnal growths should be removed from both lagoon and lower embankment areas. Depths of less than three and a half feet may foster a problem in this regard. Shrubs and other arboral growths may be used for landscaping and shielding purposes, but should be located outside, not on, the embankment.

Fencing and *Signing*: Open fencing is recommended, both as an improvement in appearance and as a deterrent to unauthorized entry and possible accident. A sign "Raw Sewage Lagoon" is a sound idea.

Cross-Section: The bottom of the lagoon should be as uniform as possible as far as the inner edge of the embankment, so as to avoid shallow feathering fringe areas. Small localized depressions are of no significance.

Shape: Circular, square or rectangular shapes are preferable, but any regular outline should be economical and satisfactory. Islands, inlets and undulations should be avoided either in plan or in section.

Insect Control: There seems to be little difficulty in controlling the lagoon as a potential breeding place for mosquitoes, etc., as long as no aquatic or

limnal growths are allowed to extrude above the surface of the liquid and debris and windfall are periodically cleared off.

Maintenance: Should be organized on a seasonal basis; quite regular inspections made during the "open" season and vegetation removed, cut or trimmed as required.

Spring Thaw: The transition from anaerobic conditions under ice cover to the normal algael content of the open season may last as long as six weeks. This is the critical time for odorous conditions and it may be necessary to employ the use of sodium nitrate at the rate of 100 lb. per acre per 24 hours for a few days, after which the dosage may be halved and finally ceased.

In conclusion, it may be seen that single cell domestic sewage lagooning provides at least the equivalent of primary treatment at a capital expenditure of above half that for a standard plant and an annual operating and maintenance cost of a small fraction of the usual allowance for this purpose.

The process is flexible; by the use of two or more cells in series it is usually possible to effect almost total disposal of the liquid without an overflow to any surface watercourse. In other instances, the second cell combines the function of secondary treatment and storage for intermittent or seasonal discharge of effluent to drainage ditches where no natural watercourse is available for dilution and disposal.

The problem of sludge treatment and disposal is, in most if not all installations, non-existent.

MANITOBA SEWAGE LAGOONS

	Population	Size
Beausejour	(1600)	11 acres—2 cells
Boissevain	(1200)	5 acres—(early design 10 acres)
Emerson	(950)	6 acres—2 cells
Falcon Beach		1.5 acres
Gimli	(2000)	Initial 6 acres—future—6 acres
Glenboro	(750)	4 acres
Manitou	(800)	5 acres
Melita	(800)	4 acres
Morris	(1250)	10 acres—2 cells
Neepawa	(3200)	18.5 acres
Rivers	(1200)	7.5 acres
Russell	(1100)	4.7 acres
St. Lazare	(330)	9 acres
Steinbach	(2150)	13 acres
Winkler	(1650)	6 acres
Altona	(1750)	6 acres
Birtle (proposed)	(800)	3 acres
Carberry	(1050)	5 acres
Carman (proposed)	(2000)	19.3 acres
Gladstone	(950)	5 acres
Roblin	(1300)	3 acres
Portage la Prairie	(10500)	220 acres—4 cells
Shoal Lake (proposed)	(750)	4 acres—2 cells

REFERENCE

"Sewage Stabilization Ponds in the Dakotas"– a joint report of the U.S. Department of Health, Education, and Welfare–Public Health Service with North and South Dakota Departments of Health.

Canadian Journal of Public Health

THE ASSOCIATION'S FUTURE—ITS IMPORTANT PLACE IN CANADA

WHAT is the place of the Canadian Public Health Association in the overall Canadian program for the good health of every citizen? Today's conception of good health relates not only to our physical state but to our mental and spiritual health. In the November 1959 issue of the Journal, Dr. Halbert Dunn, Chief of the National Office of Vital Statistics, Washington, D.C., presented his theory of "High-Level Wellness" defining it as "a condition of change in which the individual moves forward, climbing toward a higher potential of functioning".

The physician in his private practice is concerned with determining the causes of his patients' ill health, the medical officer of health is concerned with the causes that are producing ill health in the community. The problem of health, individual and community, is complex and concerns physicians, dentists, nurses, engineers, sanitarians, chemists, sociologists, economists, teachers and members of other professions. Local, provincial and federal governments have statutory responsibilities and must give consideration to new provisions and enactments. Health problems are vital also to our welfare authorities.

In the field of medical and hospital care, plans are now operating in eight of the provinces offering basic hospital care to all citizens. In all provinces there are medical care plans offered by insurance companies and in some provinces prepaid medical care plans are being operated by the provincial medical association. The need is urgent in many communities for more hospital beds and additional nurses. The problems of medical, dental and hospital care are so great that they may be almost overwhelming. The difficulties are not only those of obtaining adequate numbers of competent, well-trained personnel, the financial requirements may become so great as to limit seriously the extent of the services. Such is the outlook when we fail to realize that in preventive medicine we have the means of greatly assisting in conserving and promoting health.

When we consider the contribution which preventive medicine has already made, we realize that we have confined our thinking largely to the field of treatment. Today, the prevention of recurring attacks of rheumatic fever promises to reduce the toll of cardiac diseases. The application of the knowledge of nutrition has eliminated ricketts, scurvy and reduced other nutritional

diseases. Smallpox, diphtheria, tetanus, whooping cough, poliomyelitis are among the diseases controlled by preventive vaccination; typhoid fever and other enteric diseases have disappeared through effective sanitation; community measures have reduced tuberculosis, infant deaths have been greatly reduced and maternal deaths are now a fraction of their earlier number. Food poisonings are responsible for much illness and the establishing of standards of quality, inspection and the giving of instruction by members of the public health department are important preventive measures.

Canada is becoming rapidly aware of the value of effective mental health programs. Greater appreciation of the needs of the mentally ill has resulted in improved hospital facilities and new methods of treatment. Mental hygiene programs promise rich rewards in the prevention of mental illness. Occupational diseases are also preventable and effective measures are being taken against these environmental diseases.

The toll of accidents can be substantially reduced. Here again is a contribution of public health, for accident prevention is part of the field of preventive medicine. Traffic accidents are intimately related to the field of medicine. Home accidents, including accidental poisonings, can be reduced through visiting public health nurses giving instruction to mothers.

The problems of providing dental care are of increasing urgency. The number of dentists being trained in Canada is not keeping pace with the increasing population. Here again, preventive dentistry offers great promise. Of major importance is the fluoridation of public water supplies.

The contribution of preventive medicine is large and of first importance in the maintenance of health. Through medical research further advances will be made and new preventive measures introduced. As the costs of providing hospital and medical care increase it is of paramount importance that the contribution which public health is making be fully understood. Maximum efforts must be made to apply effectively our present knowledge of preventive medicine both in private practice and in community health.

The Canadian Public Health Association, as a national public health body, occupies a most important place in Canada's health program. Last year marked the fiftieth year of its work. The need for a national public health association was first recognized by Dr. Edward Playter whose self-sacrificing efforts, although not successful, laid the foundations in 1893 for the Association of today. The charter of the Association granted in 1910 set forth as its purpose "the diffusion of the knowledge of sanitation (health) in all its branches". Now as then, the essential facts of health must be made known and understood by every person. To accomplish this, responsibilities must be accepted by public authorities, by qualified public health personnel, leadership given in developing new programs and adequate support provided. Only as the public knows of the work will progress be made.

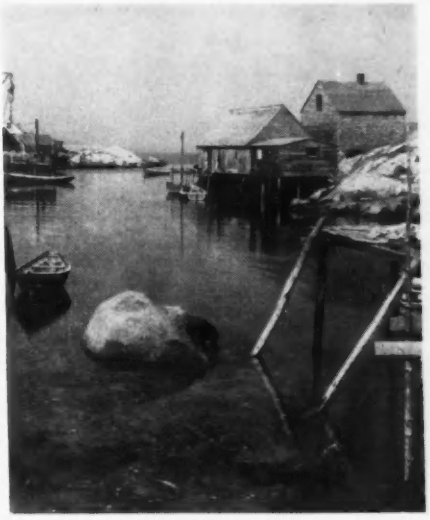
Through its provincial branches, Canada's national public health association provides the means for presenting the experience and views of all who are engaged in organized public health work. The forthcoming annual congress in Halifax will be a memorable one as policy matters of the greatest importance will be fully discussed. Canada looks to the Canadian Public Health Association for strong and effective leadership in public health. The responsibility is ours.

WELCOME
TO
NOVA SCOTIA

Annual Meeting
Halifax

May 31, June 1 and 2
1960

Executive Council Meeting
May 30



Peggy's Cove, N.S.

Canadian Public Health Association
and the
Nova Scotia Branch

Tip of St. Paul's Island, Jessie Cove, N.S.

Richard A. Donahoe, Q.C.
Honorary President
Canadian Public Health Association

J. S. Robertson, M.D., D.P.H.
President
Canadian Public Health Association

Come to the Annual Meeting!

THE annual meeting of the Canadian Public Health Association has always been an occasion to look forward to, bringing together as it does all those groups concerned with the health of the people of Canada. In the scientific sessions the newest in public health measures is discussed, the latest in health insurance thought is presented. Not to be forgotten are the discussions, both scientific and social, with old and new friends. In line with modern health thinking, entertainment and relaxation are always an important part of the meetings.

At the coming meeting in Halifax we can assure you of a hearty welcome, an excellent program with some new features, new hotel facilities, and excellent entertainment, including the best of weather, a welcoming party and a shore lobster party.

Why not plan to come to the meeting with the family and then spend a vacation in "the Maritimes"? Good roads and modern hotels and motels will add to your pleasure—exploring this Canada of ours will make us all even more proud to be Canadians.

Halifax and Nova Scotia welcome all delegates—do come—many old friends will be here to greet you.

Richard A. Donahoe, Q.C.
Minister of Public Health
and Welfare
Province of Nova Scotia

J. S. Robertson, M.D., D.P.H.
Deputy Minister of Public Health
Province of Nova Scotia

Halifax - Convention City

HALIFAX, capital of the storied province of Nova Scotia, is unique in its appeal to lovers of history, of beauty, and of sport. Being the first city established by the British in Canada, it is a city of many firsts. Conceived as the main military and naval base for British North America, Halifax was founded in 1749 by Lord Cornwallis. Lavishly supported by the British government, it speedily became the chief naval and military base in British North America. It played important roles in the Seven Years' War with France, the War of American Independence, the War of 1812, the United States Civil War—as a center of intrigue for emissaries of both factions, and a port of supply for Southern blockade runners. In both World Wars its net-guarded harbour and Bedford Basin were the headquarters for hundreds of transport convoys and for examination and internment of suspected cargoes.

One of the earliest public buildings to be completed was St. Paul's Church. Opened for worship in 1750, it still serves congregations today and is the oldest Protestant church in Canada. Within its 200-year-old walls is found the finest collection of funeral hatchments in North America, as well as much fine old silver and many memorial tablets and vaults of noted men of the early days of Halifax.

Province House, seat of the first parliament in the British Dominions, is considered by many the finest example of the Georgian architectural style on the North American continent. The chief attraction is the throne room where, besides royal portraits, can be seen the table about which Cornwallis gathered his first Council in 1749. In 1958 the bicentennial of representative government in the Commonwealth was celebrated.

I wish to take this opportunity to extend a warm and friendly Nova Scotia welcome. E MARI MERCES (Riches from the Sea) is the motto of our city and there are riches by the sea for you to enjoy while you visit with us. We hope you will have the fullest possible enjoyment from your visit to the capital city of Canada's ocean playground.

We are privileged to have you in our City and I am sure you will find your visit to Halifax interesting and hospitable.

Charles A. Vaughan
Mayor
Halifax, Nova Scotia

W. J. Chisholm, B.Sc., C.S.I.(C)

The Nova Scotia Branch of the Canadian Public Health Association extends to all public health workers and friends of the Association a most sincere and warm welcome to Halifax and to the Province of Nova Scotia.

This year, 1960, marks the first birthday in the second half-century of our Association. Undoubtedly, there will be many challenging opportunities for public health in the years ahead. We must be prepared to take advantage of these opportunities and to progress even more rapidly than in the past.

The papers and discussions at the coming congress will equip us for the work ahead and will provide a real stimulus to our efforts toward the improvement of public health.

W. J. Chisholm, B.Sc., C.S.I.(C)
President
Nova Scotia Branch

Among other firsts which this historic city can claim are the first printing press to be set up in Canada, and it was here that the first newspaper was published. Halifax's was the first post office in Canada. Here, too, took place the first hanging of a woman for murder. Halifax has played a part in the affairs of many nations in peace and in war. It has known great joy, great wealth, and great misery, and all the events have added their marks to this historic peninsula.

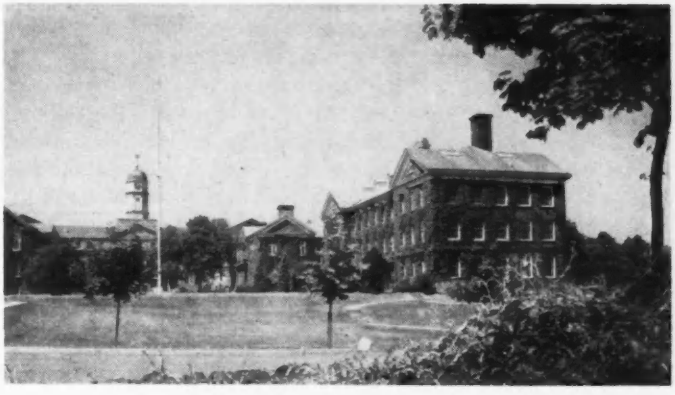
Halifax rises irregularly from the waters of its famous harbour, Bedford Basin, and the North-West Arm to the heights of Citadel Hill at the center of the city. The Citadel is a huge star-shaped fortress, now a national historic site. Within its magnificent wall are three museums in which models, ancient documents, and uniforms give ample proof of the growth of Canadian naval and military might from their imperial beginnings. Here, too, are relics of the tools and material with which the sturdy pioneers planted the roots of Canadian life in this province. On the slopes of the Citadel is the old Town Clock, a gift from Edward, Duke of Kent, father of Queen Victoria. This historic clock is the most widely known landmark of Halifax.

From the halls of its houses of learning, Halifax has reached out and influenced the cultural and intellectual and scientific life of this whole continent. The University of King's College was founded in 1813 and is the oldest university in the Commonwealth outside the British Isles. Many students from Dalhousie University have become famous in their chosen professions. Particularly renowned at Dalhousie are the faculties of law, medicine and dentistry. One of the largest educational establishments in the Maritimes is St. Mary's University, established in 1841. It is owned by the Archdiocese of Halifax and is directed by the Jesuit Fathers.

COME TO HALIFAX IN JUNE

Historic Town Clock on Citadel Hill overlooking Halifax Harbour.

The Evangeline Chapel at Grand Pre in Apple Blossom Time.



A View at Dalhousie University, Halifax.

Photographs courtesy of Nova Scotia Film Bureau and National Film Board.

Within and around Halifax are 288 acres of gardens and parks. Located below the slopes of the Citadel and between the business and residential sections of the city are the Public Gardens—considered by many the finest on the continent—18 acres of loveliness complete with colour, scent, ponds, fountains, fish, birds, and every type of flower and tree indigenous to this climate as well as many rarer specimens. Point Pleasant Park is a 200 acre tract of unspoiled natural beauty on the tip of the peninsula. It is threaded by ten miles of shaded walks and bridle paths. From its three forts and interesting old Martello Tower can be seen the mouth of the harbour and the open Atlantic Ocean. On the other side of and overlooking the North-West Arm is Sir Sandford Fleming Park, the haven of birch groves and grassy slopes dominated by a lofty tower commemorating the beginning of parliamentary government in Canada in 1758.

From Halifax it is only a comparatively short drive inland to rich rural areas of fruit and mixed farming, or along the coast to rugged, granite-bound fishing communities. Dotted along its shores and among its hills and valleys Nova Scotia boasts some of the most attractive tourist and holiday resorts and a summer climate which is without peer.

In this seaside province, the descendants of the five races that originally settled here—English, Irish, Hanoverian, French, and Scottish—have kept alive traditions and customs of their ancestors. During the summer months each year, Nova Scotians of Scottish and Acadian French descent hold events which recall their forbears and background. The district of Clare is the center of Acadian culture in the province. Located just west of the first French community, Port Royal, it is to this area that the Acadians returned after expulsion in 1755. The island of Cape Breton is the center of Scottish culture, where more Gaelic is spoken than in Scotland itself, and the Bibles are written with "the Gaelic on the one side, and the English on the other for the Heathen".

The first attempt at settlement in Nova Scotia was made by Baron de Lery of France in 1518. It failed. In 1604, the Sieur de Monts established the first permanent settlement of Europeans north of the Gulf of Mexico at Port Royal now Annapolis. He was accompanied by the much more famous Samuel de Champlain. The growth of the Acadian settlements in the "Land of Evangeline", their expulsion and return, are some of the most romantic and dramatic events in Canadian history. In 1621 King James the First of England and the Sixth of Scotland granted the province to Sir William Alexander, a Scottish gentleman. In 1625 it was named the Royal Province and was given a Royal Coat of Arms from which was derived the Nova Scotia flag. In 1753, two thousand Protestant Hanoverians from the Palatinate and the Upper Rhine founded the town and country of Lunenburg. They were industrious workers and fine ship-builders.

From these beginnings grew the races and cultures which, combined, have produced many of the greatest leaders for all parts of Canada. Nova Scotians love their province. They love the mines, the forests, the farms and the tangy salt of the ocean. They are hospitable people, and they love to welcome visitors and to make them feel at home in this historic part of Canada.

Preliminary Directory of Sessions

MONDAY, MAY 30

9.30 a.m.—Meeting of Executive Council, C.P.H.A.
12.30 p.m.—Assembly of Exhibits
2.30 p.m.—Registration
Meeting of Executive Council, C.P.H.A.
8.00 p.m.—Welcome Party tendered by N.S. Branch, C.P.H.A.

TUESDAY, MAY 31

8.30 a.m.—Registration
9.30 a.m.—Welcome addresses by:
Premier of Nova Scotia
Mayor of City of Halifax
President of C.P.H.A.
10.30 a.m.—General Session
11.00 a.m.—Ladies' Coffee Party in Presidential Suite
12.30 p.m.—Completion of Papers
12.45 p.m.—Luncheon
2.30 p.m.—Section Meetings
Dental Section: visit to Fluoridation Plant, Halifax Water Works
5.00 p.m.—Completion of Papers

WEDNESDAY, JUNE 1

8.00 a.m.—Breakfast for School of Hygiene Alumni, U. of T.
9.30 a.m.—General Session
11.00 a.m.—Ladies' Coffee Party in Presidential Suite
12.30 p.m.—Completion of Papers
12.45 p.m.—Luncheon Meeting, N.S. Branch
2.30 p.m.—Donald Fraser Memorial Lecture
Ladies' Trip to the Citadel
3.00 p.m.—Section Meetings
Dental Section: Visit to Dalhousie Dental School
5.00 p.m.—Completion of Papers
6.30 p.m.—President's Reception
7.30 p.m.—Annual Dinner, C.P.H.A.
9.30 p.m.—Dance

THURSDAY, JUNE 2

9.30 a.m.—General Session
12.30 p.m.—Completion of Papers
12.45 p.m.—Luncheon
2.30 p.m.—Section Meetings
3.00 p.m.—Completion of Papers
3.30 p.m.—Trip to Peggy's Cove and Hubbands
6.00 p.m.—Lobster Supper, Shore Club, Hubbands

"May We Quote You?"

—What to do when a reporter calls—

Medical officers of health and members of the staff of health departments often avoid interviews with reporters of newspapers or radio. The following article, published by Esso Standard Oil Company for their operating and staff managements of affiliated companies, was compiled from suggestions received from working newspapermen and radio reporters and may be of value. Permission to reproduce the article in the Journal was kindly granted by the Company.

REMEMBER, first of all, that the reporter's sole purpose in coming to you is to get a story. You may be a most interesting conversationalist but that isn't what's attracting the reporter. He wants a story; he wants some facts. That's his business—the way he makes a living. And as long as newspapers and radio are primary sources of information—the best means of showing the public a true picture of your company and yourself—it's beneficial all around to give the reporter all the facts you can, as accurately as you can and as clearly as you can.

If You Know the Answers

First let's say you have all the answers and you can give them freely. Now, for the reporter's sake as well as your own, don't bore him with every small detail relating to the subject. Give him the main facts. If he wants to fill in the chinks with minor matters, he'll ask for them.

Perhaps the information the reporter seeks is of a controversial nature. No matter how obvious it may appear to you that the company is on the right side, never indulge in indignation or enjoy the folly of taking a swing at the fellow with an opposite view of the issue; just explain the company's position as you know it and state it thoroughly and fairly. Don't try to colour or stretch the facts. A good reporter recognizes these tactics and they throw suspicion on your whole case.

Possibly you have a good deal of printed material on the subject. Undoubtedly, you'd like to have him read it all so that he can see how fully justified your position is. Instead, pick out a good short summary if it's available or mark important paragraphs for his special attention.

Confidential Matters

There'll possibly be a time, too, when a reporter asks for some data that you feel you should not divulge right then. Tell the reporter frankly that the information he seeks is confidential and, if possible, tell him why it's confidential—that an announcement now might be misconstrued; or whatever the justifiable reason may be. Probably you will be able to give him the answer to his question later. If you tell him you'll provide the information as soon as it can safely be released, make certain that you do. It's a sure way to gain respect and confidence. But an even surer way to lose it is to neglect to notify him and very likely let his competitor get the story first.

"Off the Record"

On the other hand, you may decide that the reporter should have that information "off the record". There's no particular value to the reporter in such material other than providing him with background for a future story. But should you decide to go "off the record" be absolutely sure there's no misunderstanding—that the reporter knows when you go "off the record", and equally important, when you go back "on the record". Failure to let the reporter know when you're back on the record may keep him from using the information you mention later. Then, should a rival use

that material, the reporter is going to feel that somebody, somehow, double-crossed him.

If You Don't Know

Admit that you don't know, then be as helpful as you can. Call on other departments for aid. Make an effort to get the facts for him or make it possible for him to contact the best available source. If the information isn't available at the time, take advantage of another rare opportunity to make an important friend. When the data the reporter seeks become available—even though it may be several days or weeks later—let him know at once. You may think it's too late to do him any good, but let the reporter decide that. And anyway, you'll establish yourself as a man of your word. But in all cases, answer the query as soon as possible.

Don't Try to be an Editor

Occasionally you might be asked for information on a subject requiring highly technical answers. Perhaps the reporter will ask you to check his copy as a precaution against errors. If he doesn't ask, don't hesitate to offer a helping hand. But if you do get the opportunity to look over the story before it is published, don't pretend to be an editor.

Press Conferences

Distribution to the press of copies of a prepared manuscript explaining the message you want to get across is splendid. But don't make the mistake of indicating the reporters can't read by reading the manuscript to them. Better spend the time answering questions that may arise on the manuscript and in case the questions get a little too specific, it's a good idea to have another company man or two around to help out, preferably the key man on the job under discussion.

Some of the questions asked at a press conference can be anticipated. So it's a good idea—and a lot easier on yourself—to figure out those questions—and their answers—in advance.

Emergencies

A fire, an explosion, or some other serious accident can happen in a plant despite utmost precautions, the finest equipment, and the best management. Should such an emergency develop, it is most important to keep in mind that no company ever profited by locking the gates to the press, by minimizing the situation as a means of avoiding questions, or by allowing speculation, rumour, and conjecture to take the place of facts.

If the accident is of any consequence, the first inquiries from the local papers probably will be by telephone. All the facts then available and verified should be given to the press. In case of casualties, the names and addresses of the injured should be withheld until the families involved have been notified. When newsmen and photographers come to the plant to gather their own material, they have the right to expect the same courtesy and co-operation and the same access to the information that they have received on happier occasions. You should avoid expressing opinions as to the cause of an accident and stick to the known, observable facts. A reporter's job is to cover the story, and he'll make inquiries of many others besides you, especially if he can not get from you the information he needs. It's much harder to correct bad information after a story appears than to provide adequate information at the beginning. When all the facts are available, they should be available to the press.

These points should be held uppermost in mind in an emergency situation:

1. The press has a legitimate interest in what is happening.

2. The situation will be reported whether you co-operate or not, but it will serve the company much better if you do co-operate and provide accurate information.

3. A bad impression made under the stress of dramatic incident can cancel in a few hours many years of good impressions made in the handling of other news.

The Result

Then comes the fruition of your combined efforts; the story gets in print. If you're pleased with it, fine. Everybody's happy. If you're dissatisfied there's probably a reason. Maybe it's you. Per-

haps the point that you were emphasizing is buried down near the bottom of the article and some little point you thought mediocre is played strongly. Don't make the mistake of complaining about it. Perhaps you didn't make your point clear enough. But more likely, the reporter found a more timely, fresh or interesting angle and used it. That's his job. Or perhaps you're disappointed because the interview you gave on a controversial subject doesn't appear with your side of the issue exclusively. In all fair, unbiased news accounts, both sides of the questions are given. After all, that's better for everybody concerned because if the reporter had only interviewed one person it might have been the fellow on the other side of the fence from you.

And possibly you went out of your way to give the reporter the exact technical language used by your industry. The chances are that when the article appears, your carefully-phrased scientific expressions have been simplified. The reason is that the article is for the information of the general public—not just the persons in your particular department or industry.

But if there's a really important mistake in the story, be sure to mention it to the reporter, himself, at the first opportunity. In the first place, you don't want him to make the same mistake again and neither does he. In the second place—if the error is serious enough—he'll probably make a correction, either in a separate little story or in another story dealing with a similar subject. But whatever happens, don't incur ill-will by complaining to the reporter's superior or to anyone else on the paper.

There's no strict formula to follow on how to deal with representatives of press and radio, but it's a good idea never to let your common sense and good manners take a holiday. And it's a sure bet that you can best help the reporters, the public, the company and yourself if you in your contacts keep in mind the "Four F's". Be Friendly, Frank, Fair, and Factual.

SOMMAIRE

Souvent, les médecins hygiénistes et le personnel des bureaux de santé évitent les entrevues avec les reporters de la presse ou de la radio. Cet article fut publié par la Compagnie d'Huile Esso Standard à l'intention des gérants, à la direction et aux opérations, de ses sociétés affiliées, à l'aide de suggestions reçues de journalistes et de reporters radiophoniques. La Compagnie a gracieusement accordé la permission de reproduire l'article dans notre Journal.

Il n'y a pas de formule rigide quant aux relations à entretenir avec les représentants de la presse et de la radio, mais c'est une bonne idée de ne pas se départir avec eux de son bon sens et de ses belles manières. Il est certain que le meilleur moyen de servir les reporters, le public, son employeur, et soi-même est, en plus bien entendu de dire la vérité, de se montrer toujours cordial, loyal, et impartial. (Trad.: Dr. J. Gilbert)

This May Concern YOU!

The treasurer of your provincial health association or branch should receive your fees NOW in order that the National Office may be advised before the names of those in arrears for 1960 are removed from the mailing list of the Journal.

A list of provincial officers may be found on page 10 in the advertising pages of this issue.

Do Your Part to Strengthen the Association!

News Notes

International

The Canadian Red Cross Society sent a team of physicians specializing in physical medicine and qualified physiotherapists to aid paralysis victims in Morocco. They left Montreal for Ravat on December 20 and joined similar units from eleven European Red Cross Societies. It is reported that almost 10,000 persons suffered paralysis following the consumption of adulterated cooking oil. Dr. Gustav Gingras, executive director of the Rehabilitation Institute of Montreal was in charge of the team and was chosen to assume the professional direction of all the medical specialist personnel recruited by the eleven national Red Cross societies. Flight Lieutenant David H. Brooks, Sunnybrook Hospital, Toronto, was the second medical member of the Canadian team. Miss M. L. Joncas, Miss A. Forget and Miss L. S. Shearly, all of Montreal were nursing members. One of the principal tasks will be the training of Moroccan personnel while providing treatment to the paralysis victims and the establishing of rehabilitation centers and field hospitals. It is estimated that the operation will require twenty medical specialists and 120 physiotherapists.

A new United States-Canadian Commission to study what is now being done and what should be done in the future to deal with alcoholism as a major public health problem has been announced by Dr. H. David Archibald, executive director, Alcoholism Research Foundation, Toronto, the Canadian representative on the Commission. The new commission will be financed by a $1,000,000 grant from the United States Public Health Services National Institute of Mental Health. The studies will extend over a five-year period and will reach into every state and province.

1960 is World Mental Health Year. Its purpose is to provide, develop and carry out forward-looking activities aimed at stimulating new scientific interest in the field of mental illness and mental health throughout the world.

Federal

Representatives of the medical and allied professions from across Canada met at the Canadian Civil Defence College, Arnprior, November 16–18, to study the proposed arrangements for emergency health measures as outlined by the Department of National Health and Welfare. The proposals include a more specific role for the provinces and a closer working relationship between medical services of the armed forces and civilian units in the event of a disaster, and the necessity of measures for maintaining health and the control of disease under disaster conditions. An announcement was made that the Canadian govern ent had placed orders amounting to $10,000,000 for emergency health supplies which will be distributed to regional warehouses across Canada. Training supplies have also been purchased and will continue to be distributed as units are developed which require training aids.

A modern 125-bed general hospital was officially opened at Kingston on October 9, 1959 by the Honourable G. R. Pearkes, Q.C., Minister of National Defence. The $2,500,000 structure is part of the unified Canadian medical forces service and is staffed by personnel from each of the forces. The commanding officer is Colonel J. W. P. Barr, C.D. The hospital will be an integral part of the teaching facilities of the faculty of Queen's University. The initial studies that led to the final plan of a unified service began six years ago under the direction of Major General J. A. Hunter, O.B.E., C.D. and Dr. J. A. MacFarlane, dean of the faculty of medicine, University of Toronto.

Dr. O. Hoffman, formerly on the Staff of the Civil Service Health Division has been appointed Chief of the Blindness Control Division of the Department of National Health and Welfare.

Dr. C. Lloyd Francis and Mr. John E. Sparks, who have been members of the Research and Statistics Division of the Department of National Health and Welfare for many years have recently resigned. Dr. Francis will devote full-time to business interests and to his municipal activities as an Alderman of the City of Ottawa, and Mr. Sparks will become secretary of the Advisory Planning Committee on Medical Care recently established by the Province of Saskatchewan. Both Dr. Francis, as the Principal Research Officer of the Department in the field of health services, and Mr. Sparks, as the Supervisor of the Hospital and Medical Care Insurance Section of the Division, took an outstanding part in

the development of the nation-wide hospital insurance program governed by the Hospital Insurance and Diagnostic Services Act of 1957, and in many other major research activities of the Department.

The services of Dr. L. B. Pett, Chief of the Nutrition Division of the Department of National Health and Welfare, have been loaned for three months to an economic mission which is visiting Japan, Indonesia, and India. In the group are three Americans, one Australian, two Canadians and a representative of India from F.A.O. The mission left Washington the latter part of January and proceeded first to Japan. They will return via Rome.

British Columbia

The British Columbia Division of the Canadian Cancer Society has provided a new building and equipment costing $575,000 to accommodate the new cancer research unit at the University of British Columbia. It will be part of a three building medical sciences center on the University campus. Dr. Robert R. Noble, Professor of Medical Research, University of Western Ontario has been appointed director of the research unit. Tenders will be called in December for the construction of the whole medical sciences center.

A pilot study is in progress in four centers in British Columbia relating to the prevention of recurring attacks in children who have suffered from acute rheumatic fever. Penicillin tablets are being supplied free of charge to these patients on the recommendations of their physicians.

Thirty delegates from British Columbia will be chosen to represent the province at the Canadian Conference on Children 1960 to be held at Ste-Adéle in 1960. The Conference will deal with child development and child welfare services in Canada. Dr. Jean McLennan of Vancouver is chairman of the British Columbia provincial committee.

Alberta

Dr. Victor E. Potter, a graduate of McGill, has been appointed as Dental Officer with the Wetoka Health Unit. Dr. Potter is a native of Alberta, and until recently was practising in Montreal.

Following study of the control of psittacosis and its incidence in budgerigars offered for sale in retail stores, revision of the Communicable Disease Regulations will include: (1) compulsory banding of budgerigars, (2) compulsory feeding of the birds on aureomycin-impregnated hulled millet seed until the time they are sold, and (3) compulsory registration of all retail sales.

Dr. D. M. Cassidy of Fort Vermilion has reported a winter outbreak of poliomyelitis in the district of LaCrete, 500 miles northwest of Edmonton. Since the middle of October, there have been eighteen cases of poliomyelitis, all among children one to nine years. Five of these cases have been fatal. During this period there have been ten cases diagnosed as aeseptic meningitis ranging from three months to six years of age. Several multiple familial cases have occurred. All virus isolations were of type 1.

Dr. Malcolm G. Taylor, associate professor of political economy, University of Toronto, has been appointed principal of the new University of Alberta in Calgary with the status of vice-president. The new University of Alberta in Calgary will be granting its own degrees in two years and will be separate from the University of Alberta in Edmonton, although administered by the same Board of Governors. Dr. Taylor has been closely associated with public administration, particularly in the field of health services.

Saskatchewan

Humboldt-Wadena Health Region

The eleventh health region went into operation February 1, 1960. Situated in the central part of the province it is comprised of 7 towns, 20 villages, and 18 rural municipalities. The towns are Humboldt, Wadena, Wynyard, Foam Lake, Watson, Kelvington and Lanigan. Population of the region is estimated at 47,527. Only one area in the province, the Saskatoon rural area remains to be organized. Dr. Elizabeth C. Nelson, D.P.H. formerly with the Nottingham County Public Health Department and more recently assistant medical health officer of the Yorkton Health Region has been appointed medical officer. Serving with Dr. Nelson in the Humboldt Health Region will be Mr. Peter Swallow as senior sanitarian and Miss Orpha Yonge as regional nursing supervisor.

Regional Psychiatric Center for Yorkton

Plans have been announced by the Saskatchewan Government for a regional psychiatric center to be established at Yorkton, with construction to start in the spring of 1960. The center will be built adjacent to the new Yorkton Union Hospital and integrated with it. The in-patient section of 150 beds will function in the same way as existing psychiatric wards in general hospitals. The center will also provide outpatient services, day-hospital and night-hospital care as required, and community services throughout the region.

The purpose of the center is to furnish all types of psychiatric care to the 84,000

people of the Yorkton region. Being located in the center of the community it serves, rather than at a distance, it will make possible a quality and variety of service which large and isolated mental hospitals cannot give. The cottage style construction of the in-patient facility will mean that it will have no large wards and will permit the patients to live in small groups in home-like surroundings. The regional psychiatric center will provide continuity of treatment so that the social worker who sees the patient in his home and the doctor who treats him as an out-patient will be the same individuals he will see in hospital. These factors will make treatment much more effective. A major advantage will be that mentally ill patients will be cared for close to their homes and their relatives.

Other beneficial aspects of the community service will be the mental health clinics conducted throughout the region by the staff of the psychiatric center, and home care for mentally ill persons when appropriate. The psychiatric staff, because of being located within the community rather than at a distance, will be able to co-operate more closely with the general practitioners and private specialists with resulting benefit to the patients.

Several years of study have been devoted to developing the most suitable type of accommodation for this new kind of community-centered mental health service. It is believed that the center now to be built will provide an exceptionally suitable basis for implementing a complete program of modern psychiatric care.

Dr. M. S. Acker, D.P.H., until recently director of the Co-ordination and Planning Branch of the Saskatchewan Department of Public Health, has been appointed director of the Regional Health Service Branch.

Manitoba

The Tenth Annual Institute for Sanitary Inspectors was held at the University of Manitoba, Feb. 29, to March 4. Of special interest was a panel "Housing In The Modern City" chaired by R. C. Prochaska, Division of Public Health, of Minneapolis. Others taking part in the discussion were G. W. Kelly of the City of Winnipeg Health Department, and E. G. Simpson of Winnipeg.

Among the many subjects discussed during the conference were "Radiation Fall Out" presented by Prof. R. D. Connors, Department of Physics, University of Manitoba; Field Reports on Swimming Pool Construction presented by L. A. Kay, A/Director, Environmental Sanitation, Provincial Government. W. M. Ward, Chemist with the Industrial Hygiene Bureau, discussed the use of mercury compounds in seed cleaning plants, while K. M. Render, Superintendent, Inspection Services, Department of National Health and Welfare, dealt with the recent interest in the Foods and Drugs Act.

Dr. T. A. Pincock of Winnipeg retired as provincial psychiatrist. Dr. Pincock was deputy minister of health and had an active part in organizing the Department of Health and Public Welfare. He was appointed provincial psychiatrist in 1942.

Dr. Dorothy Hall has been appointed medical director of the Portage La Prairie Health Unit. Dr. Hall is a graduate of the Royal Hospital of Medicine in London.

Ontario

The first large metropolitan health unit in Ontario, serving Windsor and seven adjoining municipalities has been established. The director is Dr. John Howie, medical officer of health of Windsor. The total population served is approximately 185,000 and the annual cost approximately $400,000.

The Ontario Fluoridation Investigating Committee, appointed by order-in-council, to inquire into, examine and report upon all matters in any way pertaining to fluoridation of public water supplies, will hold public hearings at the parliament buildings, Toronto, commencing on Monday, May 2.

Quebec

A new agency for epileptics is being planned for Montreal following a conference of 300 delegates, sponsored by the Montreal Neurological Institute, the Montreal Council of Social Agencies and the Department of Neuro-Psychiatry of Hotel Dieu. The chairman of the planning committee is Dr. C. A. Roberts, superintendent of the Verdun Protestant Hospital.

New Brunswick

Dr. Frank C. Hazen, District Medical Health Officer for New Brunswick Department of Health and Social Services and Chairman of the Saint John County and Charlotte County Boards of Health, passed away suddenly on January 8, 1960. He was in his fortieth year and was appointed to this office in 1952.

Nova Scotia

Miss Loretta Madden, R.N., Stellarton, has recently joined the staff in New Glasgow for in-service training before attending the university course.

Miss Florence McKinnon, R.N., Glace Bay, also joined our staff for her in-service training, with headquarters in Sydney.

Mrs. Wilma Raynor, R.N., P.H.N., Bridgewater, recently resigned from our staff, as did Mrs. Mary Jala, R.N., P.H.N., Shelburne.

Books and Reports

TREATMENT OF LUNG CAVITIES AND ENDOBRONCHIAL TUBERCULOSIS, *Beryl E. Barsby, M.D., M.R.C.P. Macmillan of Canada, 1959, 147 pp., $3.40.*

Dr. Barsby conducted her studies in Malaya. She is the wife of Brian Wilberforce Smith, F.R.C.S. Both were members of the staff of the general hospital, Johore Bahru, Malaya. Most of this book was originally written for the British Tuberculosis Research Prize 1956, but additional material is included with special reference to cavity closure and problems as seen among Asians in Malaya. The importance of endobronchial tuberculosis is emphasized. The findings will be of particular interest to chest specialists.

THE TECHNOLOGY OF FOOD PRESERVATION, *Norman W. Desrosier, Ph.D. The Avi Publishing Co., Inc., Westport, Conn., 1959, 418 pp.*

The author is professor of food technology, Purdue University, Indiana. The purpose of the text is to present the elements of the technology of food preservation. The book is an up-to-date, authoritative presentation and is particularly well illustrated. It can be heartily recommended. Food preservation is a subject of great importance to sanitary inspectors, public health veterinarians, sanitary engineers and to medical officers of health. This is a book that could be included on the public health worker's shelf as well as among the books in the health department.

HISTORY AND TRENDS OF PROFESSIONAL NURSING, *Deborah MacLurg Jensen, R.N., B.S., M.A., The C. V. Mosby Co., St. Louis, 1959, Fourth edition, 610 pp., $5.25.*

This is the fourth edition with suitable revision of this valuable work. The contents include The Social and Professional Setting of Nursing; Pre-Florence Nightingale Nursing; Florence Nightingale; Early American Nursing; Expansion of Professional Nursing; Professional Nursing Between World War I and World War II; Nursing During World War II; Postwar Developments and Trends; Expanding Opportunities for the Graduate Nurse; Legal Aspects; International Relationships; and a Survey of Nursing in other Countries. This is a reference work which has already met a very definite need in the nursing field and the new edition will be welcomed.

PROGRESS IN PSITTACOSIS RESEARCH AND CONTROL. *Edited by F. R. Beaudette, Rutgers University Press, New Brunswick, New Jersey, U.S.A. 1958, 271 pp.*

This book is a record of the second symposium on psittacosis held in New York City in 1956 which was made possible through the generosity of the Hartz Mountain Products Corporation. Dr. F. R. Beaudette, who arranged both meetings died before he had completed the editing of the proceedings of this second symposium. The editing was completed by Dr. Morris Pollard. Subjects included are: Ecologic Factors in Disease, Diagnosis, Therapy, and Progress in Control. Twenty-one scientists contributed in the presentation of 16 papers. The published proceedings review the present knowledge of this disease and constitute another tribute to the memory of a great scientist.

NUTRITION FOR TODAY. *Elizabeth Chant Robertson, M.D., Ph.D. McClelland and Stewart Limited, Toronto (second edition). 1959, 259 pp., $2.95.*

This non-technical presentation of nutrition contains information which a lay person can use with great profit. The book first discusses foods, describing what food factors they contain, explaining the need for these factors and how each food in the group compares with others. There are also chapters on calories, overweight and reducing diets, underweight, meal planning and economical buying, meals for expectant and nursing mothers, meals for children, school lunches, tooth decay and tooth facts and fancies. This second edition contains many revisions and additions.